

WHAT IS CLAIMED IS:

1. A monoclonal antibody or binding fragment thereof, which specifically binds to an antigen on the surface of a human myeloma cell, said antigen being further characterized in that
 - (a) it is a single polypeptide with a molecular weight of about 78 kDa to about 120 kDa as determined by SDS PAGE under reducing conditions;
 - (b) it is absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells; and
 - (c) it is glycosylated.
2. The monoclonal antibody or fragment thereof of claim 1 which recognizes an antigen present on the surface of ovarian cancer cells, said antigen being a single glycosylated polypeptide with a molecular weight of about 76 kDa to about 213 kDa as determined by SDS PAGE under reducing conditions.
3. The monoclonal antibody or fragment thereof of claim 1 wherein said antigen is absent from breast cancer cells, prostate cancer cells, and cervical cancer cells.
4. The monoclonal antibody or fragment thereof of claim 1 which is produced by the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450.
5. A monoclonal antibody or fragment thereof selected from the group consisting of the monoclonal antibody produced from the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450, which antibody binds to a cell surface glycoprotein antigen of human myeloma tumor cells; antibodies that are capable of binding to the same antigenic determinant as does the monoclonal antibody produced by said hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450; binding fragments of the

hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450; and binding fragments of a monoclonal antibody capable of binding to the same antigenic determinant as does the monoclonal antibody produced by said hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450.

6. The monoclonal antibody or binding fragment thereof of claim 5 wherein said cell surface glycoprotein is present on human myeloma cells, absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells.
7. The monoclonal antibody or binding fragment thereof of claim 5 wherein said cell surface glycoprotein recognized by said monoclonal antibody or binding fragment thereof is present on human ovarian cancer cells, said cell surface glycoprotein being a single glycosylated polypeptide with a molecular weight of about 76 kDa to about 213 kDa as determined by SDS PAGE under reducing conditions.
8. The monoclonal antibody or binding fragment thereof of claim 5 wherein said cell surface glycoprotein of multiple myeloma cells is a single polypeptide with a molecular weight of about 78 kDa to about 120 kDa as determined by SDS PAGE under reducing conditions.
9. The monoclonal antibody or binding fragment thereof of claim 1 or 5 wherein said binding fragment comprises F(ab')₂, Fab', Fv, Fd', or Fd.
10. An anti-idiotypic monoclonal antibody mirroring the binding site the antibody of claim 5.
11. A cell line produced by a hybridoma technique which produces a monoclonal antibody which specifically binds to a surface antigen of human myeloma cells, said antigen being further characterized in that

- (a) it is a single polypeptide with a molecular weight of about 78 kDa to about 120 kDa as determined by SDS PAGE under reducing conditions;
 - (b) it is absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells; and
 - (c) it is glycosylated.
12. The cell line of claim 11 which produces a monoclonal antibody which specifically binds to a surface antigen of human ovarian cancer cells.
13. The hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450.
14. An isolated surface antigen of human myeloma cells, said antigen being further characterized in that
- (a) it is a single polypeptide with a molecular weight of about 78 kDa to about 120 kDa as determined by SDS PAGE under reducing conditions;
 - (b) it is absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells; and
 - (c) it is glycosylated.
15. The isolated surface antigen of claim 14 further characterized in that it binds to a monoclonal antibody produced by the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450.
16. An isolated surface antigen of human ovarian cancer cells, said antigen being further characterized in that

- PCT/GB2005/001650
- (a) it is a single polypeptide with a molecular weight of about 76 kDa to about 213 kDa as determined by SDS PAGE under reducing conditions;
 - (b) it is absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells; and
 - (c) it is glycosylated.
17. The isolated surface antigen of claim 16 further characterized in that it binds to a monoclonal antibody produced by the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450.
 18. Use of the monoclonal antibody, or binding fragment thereof, of claim 1 in the manufacture of a medicament for use in inhibiting the growth of, or killing, myeloma tumor cells or ovarian cancer tumor cells, wherein said monoclonal antibody, or binding fragment thereof, is administered to the patient under conditions sufficient for the binding of the monoclonal antibody, or binding fragment thereof, to said tumor cells, thereby causing growth inhibition or killing of said tumor cells by the patient's immune cells.
 19. Use of the monoclonal antibody, or binding fragment thereof, of claim 1 or claim 5 in the manufacture of a medicament for use in inhibiting the growth of, or killing, myeloma tumor cells or ovarian cancer tumor cells, wherein said monoclonal antibody, or binding fragment thereof, is conjugated with a cytotoxic moiety under conditions sufficient for the binding of said monoclonal antibody, or binding fragment thereof, to said tumor cells and administered to a patient in need thereof, thereby causing growth inhibition or killing of said tumor cells.
 20. Use according to claim 19 wherein said cytotoxic moiety is a chemotherapeutic agent, a photo-activated toxin, or a radioactive agent.

21. A method of removing myeloma cells from a isolated cellular sample comprising the steps of exposing said cellular sample to a solid matrix on which said monoclonal antibody or binding fragment thereof of claim 1 or claim 5 is bound under conditions wherein said myeloma cells adhere to said monoclonal antibody or binding fragment thereof, and isolating a cellular fraction of said cellular sample which does not bind to said matrix.
22. The method of claim 21 wherein said cellular sample comprises bone marrow cells.
23. The method of claim 22 wherein said bone marrow cells from which said myeloma cells are removed are used for transplant.
24. The method of claim 23 wherein said transplant is an autologous bone marrow transplant.
25. A method for inhibiting or killing myeloma cells in a isolated cellular sample comprising exposing said cellular sample to a monoclonal antibody or binding fragment thereof of claim 1 or claim 5 conjugated with a cytotoxic moiety under conditions sufficient for the binding of said monoclonal antibody or binding fragment thereof to said myeloma cells causing inhibiting or killing of said myeloma cells.
26. The method of claim 25 wherein said cytotoxic moiety is a chemotherapeutic agent, a photo-activated toxin or a radioactive agent.
27. The method of claim 25 wherein said cellular sample comprises bone marrow cells.
28. The method of claim 27 wherein said bone marrow cells from which said myeloma cells are removed are used for transplant.
29. The method of claim 28 wherein said transplant is an autologous bone marrow transplant.

30. The monoclonal antibody, or binding fragment thereof, of claim 1 or claim 5 bound to a solid support.
31. Use of the monoclonal antibody, or binding fragment thereof, of claim 1 or claim 5, in the manufacture of a medicament to localize myeloma or ovarian cancer cells in a patient, wherein said monoclonal antibody, or binding fragment thereof, is detectably labeled, administered to the patient so as to bind to said cells within the patient, and further wherein the location of the labeled monoclonal antibody, or binding fragment thereof, is determined within said patient.
32. Use according to claim 31, wherein the monoclonal antibody, or binding fragment thereof, is labeled with a fluorophore, a chromophore, a radionuclide, or an enzyme.
33. A method for detecting the presence and extent of ovarian cancer in a patient comprising determining the level of the antigen of claim 16 in a sample of bodily fluid from the patient, and correlating the quantity of said antigen with the present and extent of said ovarian cancer cells in the patient.
34. A method for monitoring the effectiveness of therapy for ovarian cancer comprising measuring changes in the level of the antigen of claim 16 in a bodily fluid sample from a patient undergoing therapy, and correlating the change in level with the effectiveness of said therapy.
35. A pharmaceutical composition comprising a monoclonal antibody or binding fragment thereof which specifically binds to an antigen on the surface of a human myeloma cell, said antigen being further characterized in that
 - (a) it is a single polypeptide with a molecular weight of about 78 kDa to about 120 kDa as determined by SDS PAGE under reducing conditions;
 - (b) it is absent from human peripheral blood mononuclear cells, absent from human B cells, and absent from human B cell myelogenic leukemia cells; and

- (c) it is glycosylated;
and a pharmaceutically-acceptable carrier or diluent.
36. The pharmaceutical composition of claim 35 wherein said monoclonal antibody or said binding fragment thereof recognizes an antigen found on ovarian cancer cells, but not found on breast cancer cells, prostate cancer cells from a cell line, nor on cervical cancer cells from a cell line.
37. A pharmaceutical composition comprising a monoclonal antibody or binding fragment thereof selected from the group consisting of the monoclonal antibody produced from the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450, which antibody binds to a cell surface glycoprotein antigen of human myeloma tumor cells or human ovarian cancer cells; antibodies that are capable of binding to the same antigenic determinant as does the monoclonal antibody produced by said hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450; binding fragments of the hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450; and binding fragments of a monoclonal antibody capable of binding to the same antigenic determinant as does the monoclonal antibody produced by said hybridoma cell line deposited at the American Type Culture Collection having accession No. PTA-450; and a pharmaceutically-acceptable carrier or diluent.
38. The monoclonal antibody or binding fragment thereof of claim 1 labeled with a detectable moiety.
39. The monoclonal antibody or binding fragment thereof of claim 38 wherein said detectable moiety is a fluorophore, a chromophore, a radionuclide, or an enzyme.